



Similarity of Risk and Protective Behaviors Among African-American Pre- and Early Adolescent Members of Naturally Occurring Friendship Groups

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Abstract. *To determine whether self-reported risk and protective behaviors, expectations, and attitudes are more similar among African-American early adolescents within a community-based friendship group than across groups, a cross-sectional study was conducted among 382 African-American youth 9 through 15 years of age forming 76 community-based groups of 3 through 10 same-gender friends. Each member of the friendship group reported his/her own past involvement in nine risk behaviors (sexual intercourse, substance abuse, drug-trafficking, and other delinquent activities) and two protective behaviors (high academic performance and regular church attendance) and their expectations and feelings regarding several of these behaviors. Intraclass correlation coefficients were calculated overall and by gender and age. Members were generally more similar within friendship groups than across groups with regard to several risk behaviors and expectations including sexual intercourse and drug-trafficking. Particularly striking was the similarity among members of "junior" friendship groups (e.g., median age of youth <11 years) of both risk and protective behaviors and expectations. The finding of enhanced similarity of risk behaviors and expectations among members within groups suggests that intervention delivery through community-based friendship groups may be a useful approach for risk prevention efforts targeting pre-adolescent African-American youth living in low-income settings.*

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Health professionals continue to struggle to identify mechanisms to augment the effect of interventions designed to reduce the transmission of the human immunodeficiency virus (HIV) among adolescents. There is a particular urgency to identify mechanisms that will increase intervention effectiveness among youth at highest risk for HIV infection, such as minority youth living in low-income settings. Given the importance of peer influence on adolescent risk behavior, one possible mechanism for augmenting intervention effect might be the delivery of risk-reduction interventions to a group of friends in an attempt to alter the behavior of the entire social unit, rather than simply one individual within that unit.^{1,2} Supporting such an approach is a substantial literature establishing the similarity of behaviors and attitudes among friends.³⁻⁵ However, the extrapolation of this finding to a broader recommendation to deliver interventions through groups of minority friends may be premature for several reasons. First, the majority of studies examining adolescent social networks have been conducted among Caucasian youth.^{3,6,7} The few studies that have examined school-based groups of African-American youth have generally found them to be less homogeneous in behaviors and attitudes^{5,8-11} and have noted other racially based differences in friendship styles, including less salience of school-based friendships to risk participation by minority youth.¹² Second, and related, although research indicates that patterns of friendship appear to differ in school-based and community-based settings,^{11,13,14} most studies of homogeneity among friends have been school-based.^{3,8-10,15-18} Third, the majority of studies have focused on perceptions of friends' behaviors and/or attitudes by a respondent rather than self-report by these friends, even though youth appear to over-rate their similarity with their friends.^{6,9,19,20,21} Fourth, with few exceptions,^{3,7} studies of friends have been limited to studies of dyads^{8-11,16,17,22,23} rather than larger friendship groups. Fifth, the majority of studies have assessed behaviors only.^{6,18} Given the growing literature supporting the association of

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attitudes and expectations with behavior,²⁴ further investigation of the homogeneity of related attitudes, expectations, and behaviors is of great importance in understanding the relationship between groups and individual behaviors.

Clearly then, although previous research does provide support for the general concept of increased homogeneity of attitudes and behavior among friends, it leaves unresolved several important issues. Accordingly, we conducted the following study to assess whether self-reported risk and protective behaviors, expectations, and attitudes among African-American youth are more similar within community-based, naturally occurring friendship groups than across such groups.

Materials and Methods

Subjects

Subjects were African-American youth 9 through 15 years of age, identified from nine recreation centers associated with three public housing developments in a large Eastern city. The data for our study were obtained in the spring of 1993 as baseline to a randomized, controlled trial of an HIV risk-reduction intervention. Research staff conducted three introductory sessions at each recreation center to describe the purpose, general design, and enrollment criteria to youth who were potentially eligible for participation. It was explained that, because the intervention was to be delivered to naturally occurring friendship groups, only groups of same-sex friends (rather than single individuals) could be enrolled. To be eligible, a youth had to identify a group consisting of up to nine of his/her same-gender friends who normally "hung out" or socialized together and were within 3 years of age of each other, with no youth being less than 9 years nor older than 15 years as of April, 1993. Because we were interested in recruiting actual groups of friends (not investigator-formed groups), youth who were identified by the primary youth as part of the friendship group were eligible for enrollment regardless of whether they normally attended the recreation center. Interested youth were given written

materials and consent forms to be signed by both the youth and their parent(s).

Measures

Each of the youth within a friendship group completed a multicomponent risk-assessment questionnaire, the Youth Health Risk Behavioral Inventory (YHRBI). The YHRBI, which was administered aurally and visually by a “talking” MacIntosh computer via individual earphones, was developed through a series of ethnographic studies regarding potentially relevant risk and protective factors from the perspective of youth, parents, and other community members.²⁵ The YHRBI contains questions assessing numerous domains, including demographic indices and past involvement with nine risk and two protective behaviors, and attitudes and expectations regarding four of the risk behaviors. Risk behaviors assessed included having engaged in physical fighting, sexual intercourse, truancy, knife-/bat-carrying, alcohol consumption, cigarette smoking, drug use (marijuana, cocaine, heroin, and/or other “street” drugs), drug trafficking (selling and/or delivering), and carrying a gun. Community-based behavior (regular church attendance) and a school-based outcome (high academic performance) were selected as “protective” behaviors because they have been associated with decreased risk participation in other studies.^{26,27} Question formats included multiple-choice and 5-point Likert scales.

The YHRBI was administered on-site in the nine recreation centers. Youth were reimbursed \$5.00 for completing the measure.

Data Analysis

First, simple frequency distributions of demographic characteristics, and risk and protective behaviors, attitudes, and expectations were calculated.

Previous research has suggested that homogeneity within groups differs by gender¹⁸ and, in our study, there was a positive association between male gender and engagement in risk behaviors. Therefore, because groups had been restricted by the inves-

tigators to a single gender, within-gender analyses were also conducted. Likewise, because risk behavior increases with age¹ and the age range of group members had been restricted by the investigators to 3 years, separate analyses were conducted among “senior” youth groups (median age >11) and “junior” (median age ≤11) groups. (Before the analyses, 11 years was arbitrarily selected to be the dividing age because it represented the median age of the study sample.)

Next, the intraclass correlation was calculated to assess the similarity of friendship members regarding the selected risk and protective behaviors and the selected attitudes and expectations toward risk behaviors.²⁸ The intraclass correlation compares the mean square within the groups to the mean square among the groups. An F-test determines statistical significance. The intraclass correlation ranges from 0 to +1 (although *estimates* will sometimes be less than 0 as a result of the formula for calculation). A significant correlation indicates that individuals are more similar on average within friendship groups than across groups. An insignificant correlation indicates that friendship-group members are as similar to each other as they are to youth across friendship groups. For analyses based on gender (e.g., male or female groups), analyses were restricted to groups of the same gender. Likewise, for analyses based on age (e.g., “senior” youth groups or “junior” youth groups), analyses were restricted to groups of the same age category. Analyses were also conducted based on four gender-by-age subdivisions (senior males, senior females, junior males, and junior females) to determine if homogeneity was still present even when these major predictors of risk were held constant. Analyses were conducted employing LEVEL II, a software package developed to calculate intraclass correlations.²⁹

Results

General

Three hundred eighty-three youth enrolled in the study. One of the young men was subsequently unsuccessful in recruiting his friendship group and, thus, was not a part of any naturally occur-

TABLE I
 CHARACTERISTICS OF 76 NATURALLY OCCURRING COMMUNITY-BASED
 FRIENDSHIP GROUPS AMONG 382 AFRICAN-AMERICAN PRE- AND EARLY
 ADOLESCENTS

Total	Male Groups	Female Groups	Younger Groups*	Older Groups†
No. of groups				
76	41	35	49	27
No. of group members				
382	213 (56%)	169 (44%)	251 (66%)	131 (34%)
Median age of group members				
11	12	11	11	13
Median no. of group members (range)				
5 (2–10)	5 (3–10)	6 (2–8)	6 (2–9)	5 (2–10)

* Median age of group <12 years.

† Median age of group ≥12 years.

ring friendship group. Accordingly, this analysis was based on the 382 youth who formed 76 friendship groups. (For the subsequent intervention, this male was incorporated into an age- and gender-matched friendship group consisting of compatible acquaintances.) As shown in Table I, 56% of the youth were male and the median age was 11 years (12 years for males and 11 years for females). Forty-one (54%) of the groups were male and 49 (64%) had a median age of ≤11 years (e.g., were “junior” groups). The median number of youth overall in the groups was five, ranging from two to ten.

Frequency of Adolescent Risk and Protective Behaviors and Attitudes and Expectations

Table II shows the frequency distribution of adolescent involvement in the nine risk and two protective behaviors. Reported involvement in a physical fight was the most prevalent risk behavior, with more than one-half of respondents in this study reporting involvement in the previous 6 months. Over one-third of the subjects reported ever having engaged in sexual intercourse at least once during their lives. Between one-tenth and one-fifth of youth reported having been truant from school, carrying a knife or bat, consuming liquor, or smoking cigarettes at least once during

the previous 6 months, whereas less than one-tenth of the youth reported using drugs, trafficking (selling and delivering) drugs, and/or carrying a gun. Over 40% of youth described themselves as “one of the best students in my class” and reported attending church at least once a week. Nearly one-third of youth thought it likely that they would engage in coitus in the next 6 months and over one-tenth thought it likely that they would drink alcohol, use drugs, or traffic in drugs. Approximately one-fifth of youth reported that they would “feel good” about having sexual intercourse, one-tenth about drinking alcohol, selling or dealing drugs, and fewer than one-twentieth about using drugs.

More males than females, and senior youth than junior youth, reported involvement in each of the risk behaviors; these differences were statistically significant for fighting, sexual intercourse, truancy, and drug trafficking. Conversely, girls and junior youth were significantly more likely to report having engaged in both protective behaviors. Males were significant more likely to expect that they would have coitus and more senior youth perceived themselves as likely to engage in all of the risk behaviors except drug use, compared with junior youth. Females and junior youth were more likely than males and senior youth to express negative feelings about coitus.

Similarity of Adolescents' Friendship Group

Results of the intraclass correlations overall and by gender and by age are presented in Table III. Overall, youth were more similar within groups than across groups for four of the nine risk behaviors (fighting, sexual intercourse, truancy, and drug trafficking) and the community-based protective behavior (church attendance). Likewise, expectations to participate in three of the four risk behaviors (sexual intercourse, alcohol use and drug-trafficking) were significantly more similar among youth within groups rather than across groups, as were attitudes regarding sexual intercourse. Among males, youth within a group were significantly more similar than across groups with regard to sexual intercourse and drug-trafficking; youth within a group were also more similar

TABLE II
RISK AND PROTECTIVE BEHAVIORS, EXPECTATIONS, AND FEELINGS AMONG
382 AFRICAN-AMERICAN PRE- AND EARLY ADOLESCENTS

	Reported having engaged in behaviors†				
	Total	Male	Female	Young	Old
Risk behaviors					
Fighting					
N	197	134	63****	94	103**
%	52	64	38	46	60
Sexual intercourse					
N	237	114	24****	39	99****
%	37	54	15	19	57
Truancy					
N	61	46	15***	23	38**
%	16	22	9	11	22
Knife or bat carrying					
N	59	34	25	24	35*
%	16	16	15	12	20
Alcohol consumption					
N	54	34	20	26	28
%	14	16	12	13	16
Cigarette smoking					
N	51	32	19	30	21
%	14	15	11	15	12
Drug use					
N	26	17	9	13	13
%	7	8	5	6	8
Drug trafficking					
N	23	22	1****	6	17**
%	6	11	1	3	10
Gun carrying					
N	17	12	5	6	11
%	5	6	3	3	6
Protective behaviors					
Academic performance (one of best students)					
N	163	75	88**	101	62**
%	44	36	53	50	36
Church attendance (at least once per week)					
N	157	78	79*	99	58**
%	42	37	47	49	34

* $p \leq .05$ ** $p \leq .01$ *** $p \leq .001$ **** $p \leq .0001$.

† Number of youth who engaged in the specific behavior in the past 6 months ('ever in your lifetime' for sexual intercourse); 2 (gender or age) \times 2 (yes/no). Chi-square tests were done for behaviors.

‡ Number of youth who thought it's likely/very likely that they would engage in the specific risk behavior in the next 6 months; 2 (gender or age) \times 3 (likely/don't know/unlikely). Chi-square tests were done for expectations.

§ Number of youth who thought that "I could feel good/very good if I performed specific risk behavior"; 2 (gender or age) \times 3 (good/don't know/bad). Chi-square tests were done for feelings.

TABLE II
CONTINUED

Expect to engage in behaviors‡					Positive feelings about engaging in behaviors§				
Total	Male	Female	Young	Old	Total	Male	Female	Young	Old
107	79	28****	38	69****	84	65	19****	34	50****
31	41	18	19	45	24	34	12	17	33
38	23	15	15	23**	30	15	15	18	12
11	12	10	8	15	9	8	10	9	8
49	31	18	27	22**	11	5	6	11	0***
14	16	12	14	14	3	3	4	7	0
41	28	13	15	26***	45	28	17	24	21
12	14	8	8	17	13	14	11	12	14

than youth across groups with regard to expectations concerning sexual intercourse and drug trafficking and attitudes concerning sexual intercourse. Among females, fighting, sexual intercourse, truancy, cigarette use, and church attendance were more similar among group members. Expectations to drink alcohol were more

TABLE III
INTRACLAS CORRELATIONS BY GENDER AND AGE AMONG 76 FRIENDSHIP GROUPS OF AFRICAN-AMERICAN PRE- AND EARLY ADOLESCENTS REGARDING RISK AND PROTECTIVE BEHAVIORS, EXPECTATIONS, AND FEELINGS

Total	Reported having engaged in behaviors				Expect to engage in behaviors				Positive feelings about engaging in behaviors					
	Male	Female	Young	Old	Total	Male	Female	Young	Old	Total	Male	Female	Young	Old
Risk behaviors														
Fighting	.013	.076*	.109**	.097*										
.103***														
Sexual intercourse	.114**	.192***	.221***	.159**	.132***	.098**	.011	.158***	.025	.145***	.088*	.061	.091**	.075
.276***														
Truancy	.041	.089*	.147***	-.043										
.077**														
Knife or bat carrying	.030	-.005	.060	-.068										
.012														
Alcohol consumption	.010	.062	-.009	.059	.086**	.032	.169***	.137***	.016	-.008	-.045	.041	.040	-.093
.029														
Cigarette smoking	-.002	.091*	.049	-.005										
.032														
Drug use	.017	-.054	-.041	-.004	.029	.041	.016	.081*	-.064	.015	.027	.007	.041	-.026
-.009														
Drug trafficking	.062*	-.087	.019	.050	.123***	.159***	.055	.125***	.127**	.022	.049	-.025	.006	.024
.086**														
Gun carrying	.015	-.042	-.025	-.009										
-.002														
Protective behaviors														
Academic performance														
(one of best students)														
-.004	-.035	-.026	-.033	.052										
Church attendance														
(at least once per week)														
.074**	.033	.109**	.114***	-.038										

* $p \leq .10$ ** $p \leq .05$ *** $p \leq .01$ **** $p \leq .001$.

similar. Members of junior groups reported more similar behaviors with regard to fighting, sexual intercourse, and truancy, as well as church attendance, and more similar expectations with regard to all four risk behaviors assessed (sexual intercourse, alcohol use, drug use, and drug trafficking). Youth within senior groups were more similar than across groups with regard to fighting and sexual intercourse; their expectations to traffick drugs were also more similar.

As shown in Table IV, when groups were subdivided on the basis of both gender and age, there were fewer significant intra-class correlations. Nevertheless, for junior males, youth within groups remained more similar than youth across groups with respect to several risk and protective behaviors (truancy, weapon-carrying, and church attendance) and expectations (to engage in coitus, to use alcohol, or to traffic in drugs). Senior males were more similar within groups than across groups with respect to consumption of alcohol and expectations to traffic in drugs. Fighting, sexual intercourse, truancy, and cigarette use were more similar among junior female group members, as were expectations to consume alcohol. Overall, among the two sets of junior youth groups (e.g., groups of junior females and groups of junior males), six (33%) of the 18 sets of risk behaviors (nine risk behaviors for each gender) were more similar among youth within a group; among the senior youth only one (6%) of the risk behaviors tended to be more similar within groups. Likewise, among junior youth, four (50%) of the eight risk expectations (four pairs) were more similar within groups; by contrast, among senior youth only one (12%) of the risks expectations was more similar within groups.

Discussion

These data were collected from African-American youth who were members of natural, community-based friendship groups that contained a median of five friends. Data were obtained directly from all members of the friendship groups and addressed actual behaviors, attitudes, and expectations about some of these

TABLE IV
INTRACLASS CORRELATIONS BY GENDER BY AGE AMONG 76 FRIENDSHIP GROUPS OF AFRICAN-AMERICAN PRE- AND EARLY ADOLESCENTS REGARDING RISK AND PROTECTIVE BEHAVIORS, EXPECTATIONS, AND FEELINGS

	Reported having engaged in behaviors				Expect to engage in behaviors				Positive feelings about engaging in behaviors			
	Male Group		Female Group		Male Group		Female Group		Male Group		Female Group	
	Young (N = 118)	Old (N = 95)	Young (N = 133)	Old (N = 36)	Young (N = 118)	Old (N = 95)	Young (N = 133)	Old (N = 36)	Young (N = 118)	Old (N = 95)	Young (N = 133)	Old (N = 36)
Risk behaviors												
Fighting	.006	.033	.101*	-.020								
Sexual intercourse	.076	.011	.200***	.100	.143**	.057	.007	-.104	.066	.016	.038	.080
Truancy	.132**	-.054	.083*	.017								
Knife or bat carrying	.151**	-.087	-.006	.019								
Alcohol consumption	-.067	.109*	.062	-.051	.070	.009	.197***	.080	.001	-.090	.078	-.084
Cigarette smoking	-.055	-.002	.134**	-.120								
Drug use	-.037	.008	-.040	-.083	.149**	-.070	.030	-.094	.137**	-.041	.001	.140
Drug trafficking	.036	.004	-.080	/	.185***	.142**	.076	-.042	.073	.001	-.044	.098
Gun carrying	.004	-.030	-.043	/								
Protective behaviors												
Academic performance (one of best students)	-.081	.033	-.048	.085								
Church attendance (at least once per week)	.126**	-.076	.078	.095								

* $p \leq .10$ ** $p \leq .05$ *** $p \leq .01$ **** $p \leq .001$.

behaviors. Overall and controlling for gender and/or age, youth within a friendship group were more similar than youth across groups with regard to sexual behavior and expectations. Drug-trafficking behavior and expectations were generally also more similar within a group than across groups. In addition, among junior youth, truancy and expectations to engage in all risk behaviors were more similar within groups than across groups. The community-based protective behavior (church attendance) was more similar among members of a group, but the same correlation was not seen for the school-based protective behavior (academic performance).

Potential Limitations of the Study

In this study, behavioral outcomes were self-reported and, thus, may not be accurate. However, the overall stability of responses over time³⁰ and their comparability to other reports¹ reduces the likelihood of widespread misreporting.

Although the youth groups were identified by the youth rather than being formed by investigators (and thus represented naturally occurring friendship groups) some artificial constraints were imposed on group formation (e.g., size limitation, age range, and gender limitation). Thus, some members may have been excluded, thereby potentially influencing the results.

Finally, recruitment of the primary youth was done by convenience rather than by random sampling.

Implications of the Findings

The finding in our study, that groups tended to cluster with respect to sexual experience, differs somewhat from the previous literature addressing this issue.^{9,15,22} Previous research, conducted among school-based dyads, did not reveal homogeneity among males^{9,15,22} and revealed variable patterns among females in studies conducted in different states.^{15,22} These differences in findings may reflect the larger groups of friends (compared with dyads) and/or the community base (as opposed to school base) of the friendship groups used in this study; the previously reported

findings that African-American youth are more likely to form close *community* friendships than close *school-based* friendships would lend support to the later explanation for these differences. Supporting this interpretation is the observation that the community-based protective behavior (regular church attendance) tended to be more similar among members of a group, but the school-based protective behavior (high academic performance) was not. The fact that expectations were also relatively homogeneous is consistent with our earlier reported findings that sexual expectations correlated positively with sexual behavior.²⁴ The trend for members of junior groups to be similar with respect to several behaviors and expectations, but the absence of such a trend among members of senior groups, may be explained by the increasing frequency of risk behaviors with advancing age. As risk behaviors become more prevalent (and more normative), they may be less salient as the basis for friendship.^{31,32} From this perspective, the finding that the intraclass correlation regarding expectations for drug trafficking is significant for senior males may be an encouraging finding; it may indicate that drug trafficking is not a behavior that becomes normatively acceptable (and thus still is a basis for friendship).

Drug use behavior was not homogenous within groups, although expectations were homogenous overall and for junior youth and for female youth. Previous research has not assessed these behaviors or expectations among African-American youth, although in school-based studies conducted among mixed or Caucasian populations, drug-use behavior was homogenous within groups.⁸

Overall and among females, youth within a group were only marginally similar with respect to tobacco use in our study. Other research has found this behavior to be somewhat similar among youth within African-American groups, although less so than among youth within Caucasian groups.⁸ Previous research among a racially mixed population has noted a similar gender association.¹⁸

Previous research has not examined the similarity of drug trafficking, truancy, weapon-carrying, or fighting among members of friendship groups.

Implications for Future Research

These data provide evidence that, within naturally occurring community-based friendship groups of African-American youth, risk and protective behaviors and attitudes are relatively homogeneous. This finding may be taken to provide empirical support for delivering risk-reduction interventions to such community-based social networks. At the same time, the data suggest that there are important age and gender differences in this overall phenomenon and differences with respect to different risk behaviors. These later findings underscore the importance, previously noted,^{7,18} of avoiding oversimplification of the mechanism of peer influence through social networks.

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